Index to Volume 21

How to Use This Index

This index is of similar form to the Cumulative Index of this journal, published in November, 1939 and is composed of two main divisions: the Author Index and the Subject Index.

The Subject Index to Volume 20 of *The Journal of the Acoustical Society of America* lists the titles of all the papers, abstracts, and patents under twelve section headings as follows: 0, General, unclassified; 1, Acoustical Society of America; 2, Architectural Acoustics; 3, Books and Bibliographies; 4, Ear and Hearing; 5, Applied Acoustics; Instruments and Apparatus; 6, Musical Instruments and Music; 7, Noise; 8, Standards; 9, Speech and Singing; 10, Ultrasonics (Supersonics); 11, Waves and Vibrations; 12, (Changed to Section 0); and 13, Underwater Sound. Each of these sections is further divided into a considerable number of decimally numbered subjects, which are listed below under the heading, "Classification of Subjects." Each subject is divided into four parts entitled Papers, Abstracts, Subtitles, and Patents. Under Papers will be found the original titles of all the papers appearing in the journal on that subject. Under Abstracts are listed the titles of the papers presented at meetings. Since a great amount of valuable material appears in the journal in papers whose titles cannot fully describe all the subjects which the papers cover, some subtitles of papers have been indexed under the heading Subtitles. Also under Subtitles are listed Book Reviews (B.R.) and Letters to the Editor (L.E.). When subtitles covering the material did not appear in the paper, they were written; the captions of some of the figures were also included under the heading. Thus, while the Subtitles portion of the index is informal, it is hoped that it will increase the probability of finding the desired information quickly. All patents appearing in the journal are listed under the heading **Patents.**

References on most subjects can be located immediately by a logical use of the Classification of Subjects below. In case the reference sought is of an unusual character such that there is uncertainty as to the subject under which it might have been classified, this can usually be found quite quickly by the process of eliminating the sections and subjects under which it is quite improbable that it might have been listed. In case of doubt, a title has often been listed under a number of subjects.

Obviously, the Author Index is more convenient than the subject Index when one knows the name of the author of the paper in which he is interested.

The References to Contemporary Papers on Acoustics are identified in each issue by the same decimal numbers listed below, and may be consulted for references in other journals than our own. In Volume 21 these references will be found on pages 43, 146, 273, 440, 556, 639.

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SUBTITLE

Standard contract form for California schoolhouses provides for acoustical engineering service. Dariel Fitzroy. 21: 40—1949 L.E.

2.2 Auditorium Design (see also 7.6)

PAPERS

Building to the acoustical optimum new Mutual-Don Lee broadcasting studios. Walter W. Carruthers and Donald P. Loye. 21: 428—1949
Theory of speech masking by reverberation. R. H. Bolt and A. D. MacDonald. 21: 577—1949

ABSTRACTS

Building to an acoustical optimum new Mutual-Don Lee broadcasting studios. W. W. Carruthers and D. P. Loye. 21: 56—1949
Modern schoolroom acoustics. L. F. Yerges and M. A. Smith. 21: 56—1949
Transient sounds in rooms. David Mintzer. 21: 463—1949

2.4 Sound Absorption, Theory and Methods of Measurement of (see also 2.5)

PAPER

Absorption by sound-absorbent spheres. Richard K. Cook and Peter Chrzanowski. 21: 167—1949

ABSTRACTS

Acoustic absorption coefficients at high frequencies. William S. Cramer. 21: 466—1949
Sound absorption at the surface of the body of man and animals. H. E. von Gierke. 21: 55—1949
Sound absorption of perforated rigid facings backed by porous materials. L. W. Sepmeyer. 21: 466—1949

2.5 Materials for Sound Absorption. Values of Absorption Coefficients and Acoustical Impedances

SUBTITLE

Absorption coefficients for sphere covered with hair felt. R. K. Cook and P. Chranowski. 21: 169—1949

PATENTS

Acoustical structure. Arthur D. Park and Norman A. Johnson. 21: 450—1949
Acoustical tile. Grant S. Willey and Orcutt W. Frost. 21: 563—1949

2.7 Reverberation and Echoes (see also 2.3, 2.4, 2.8, 2.9, and 2.10)

PAPER

Theory of speech masking by reverberation. R. H. Bolt and A. D. MacDonald. 21: 577—1949

ABSTRACTS

Discontinuous growth and decay of sound in a "long corridor." Harry B. Miller. 21: 62—1949

2.9 Sound Transmission, Theory and Methods of Measurement of (see also 2.10)

PAPER

Sound transmission through multiple structures containing flexible blankets. Leo L. Beranek and George A. Work. 21: 419—1949

ABSTRACTS

Improved sound transmission measuring technique. L. G. Ramer, F. G. Tyzzer, and J. E. Ancell. 21: 56—1949
Method for quieting ram jet motor test stations. W. B. Snow and C. J. T. Young. 21: 466—1949
Report on International Conference on Sound Transmission and Noise, conducted by Acoustics Group of the Physical Society of London, July 14–16, 1948. Leo L. Beranek. 21: 56—1949
Sound transmission of walls with known receiving room conditions. F. G. Tyzzer, L. G. Ramer, and J. Ancell. 21: 463—1949
Transmission of reverberant sound through double walls. Albert London. 21: 466—1949

2.10 Sound Insulating Structures. Values of Transmission Coefficients

PAPER

Sound transmission through multiple structures containing flexible blankets. Leo L. Beranek and George A. Work. **21**: 419—1949

SUBTITLES

Insulation of concrete floors. Leo L. Beranek. **21**: 266—1949

Insulation of timber floors. Leo L. Beranek. **21**: 266—1949

Sound insulation of windows. Leo L. Beranek. **21**: 264—1949

Sound transmission of partitions. Leo L. Beranek. **21**: 265—1949

PATENT

Sound and vibration damping structure. Harry N. Eklund. **21**: 280—1949

2.11 Vibration Insulating Supports

PATENTS

Energy dissipating antivibration device. Leon F. Thiry. **21**: 646—1949

Mounting element for machines or the like. Roger K. Lee. **21**: 152—1949

Oscillation reducing device. Francois M. M. B. Salomon. **21**: 152—1949

Vibration insulating device. Nicholas Ivanovic. **21**: 646—1949

Vibration insulating mounting. Nicholas Ivanovic. **21**: 646—1949

3. Books and Bibliographies

3.1 Books and Book Reviews

Carillon. Arthur Lynds Bigelow. **21**: 438—1949

Design of crystal vibrating systems for projectors and other applications. William J. Fry, John M. Taylor, and Bertha W. Henvis. **21**: 145—1949

Magnetic recording. S. J. Begun. **21**: 638—1949

Proposed American standard acoustical terminology. February 1949. **21**: 439—1949

Radio at ultra-high frequencies. Alfred N. Goldsmith. **21**: 43—1949

Sources of engineering information. Blanche H. Dalton. **21**: 145—1949

Symposium report of British acoustics group. **21**: 555—1949

Table for use in the addition of complex numbers. Jørgen Rybner and K. Steenberg Sørensen. **21**: 555—1949

Traite de Prise de Son. José Bernhart. **21**: 638—1949

Ultrasonics. Benson Carlin. **21**: 638—1949

Understanding vectors and phase. John F. Rider and Seymour D. Uslan. **21**: 145—1949

3.2 Bibliographies

References to contemporary papers on acoustics. Arthur Taber Jones. **21**: 43, 146, 273, 440, 556, 639—1949

3.3 Patents

Review of acoustical patents. Robert W. Young. **21**: 48, 152, 280, 450, 563, 646—1949

Why not include patents in papers' bibliographies? B. F. Miessner. **21**: 636—1949

4. Ear and Hearing

4.1 General, Unclassified

PAPERS

Adaptation of the ear to sound stimuli. E. Lüscher and J. Zwislocki. **21**: 135—1949

Erratum: Adaptation of the ear to sound stimuli. E. Lüscher and J. Zwislocki. **21**: 434—1949

Patterns of response in the cochlea. Ernest Glen Wever and Merle Lawrence. **21**: 127—1949

Resonance curve and the decay period at various points on the cochlear partition. Georg v. Békésy. **21**: 245—1949

Structure of the middle ear and the hearing of one's own voice by bone conduction. Georg v. Békésy. **21**: 217—1949

Vibration of the cochlear partition in anatomical preparations and in models of the inner ear. Georg v. Békésy. **21**: 233—1949

ABSTRACTS

Biological effects of intense sound. Donald H. Eldredge and Horace A. Parrack. **21**: 55—1949

Electrical stimulation of the skin at audio frequencies. A. B. Anderson and W. A. Munson. **21**: 467—1949

Least discriminable intensity for random noise. J. Donald Harris. **21**: 460—1949

Mutual problems of the physicist, the physiologist, and the audiologist. Charlest E. Kinney, M.D. **21**: 59—1949

San Diego county fair hearing survey. H. W. Himes and J. C. Webster. **21**: 462—1949

SUBTITLES

Function of the ear in health and disease. H. G. Kobrak, Joseph E. Hind, and Robert B. Miller. **21**: 270—1949 L.E.

Measuring the smallest energy of impact on the teeth that can be heard. Georg v. Békésy. **21**: 225—1949

4.2 Anatomy and Physiology of the Ear

PAPERS

Aural microphonics in the cochlea of the guinea pig. H. Davis, B. E. Gernandt, J. S. Riesco-MacClure, and W. P. Covell. **21**: 502—1949

Study of the mechanism of the middle ear. Yutaka Onchi. **21**: 404—1949

4.3 Binaural Hearing. Localization

PAPER

Some determinants of interaural phase effects. I. J. Hirsh and F. A. Webster. **21**: 496—1949

ABSTRACTS

Precedence effect in sound localization. Hans Wallach, E. B. Newman, and M. R. Rosenzweig. **21**: 468—1949

Some determinants of interaural phase effects. I. J. Hirsh and F. A. Webster. **21**: 468—1949

4.4 Deafness (see also 5.5)

SUBTITLE

Memorandum on recording characteristics and monitoring of word and sentence tests distributed by Central Institute for the Deaf. Hallowell Davis, Keron C. Morrical, and C. E. Harrison. **21**: 552(L.E.)—1949

ABSTRACTS

Assessment of impaired hearing by articulation scores. Hallowell Davis, M.D. **21**: 59—1949

Determination of the "better" ear in bilateral impairment of hearing. S. R. Silverman. **21**: 58—1949

Method of calculating hearing loss for speech from an audiogram. Harvey Fletcher. **21**: 464—1949

Movie—some physical aspects of conduction deafness. Henry B. Perlman, M.D. **21**: 59—1949

San Diego county fair hearing survey. H. W. Himes and J. C. Webster. **21**: 462—1949

4.5 Instruments Relating to Hearing, and for the Testing of Hearing (see also 5.5)

PAPER

Interactions between microphones, couplers, and earphones. Keron C. Morrical, John L. Glaser, and Robert W. Benson. **21**: 190—1949

ABSTRACTS

Comparison of artificial ear couplers. Keron C. Morrical and John L. Glaser. **21**: 57—1949

Consideration and acceptance of hearing aids. Howard A. Carter. **21**: 58—1949

PATENTS

Bone conduction receiver. Leland A. Watson and Paul C. Heijn. **21**: 281—1949

Bone conduction unit. Hugh S. Knowles. **21**: 451—1949

Device for protecting the eardrum. Jacob J. Cantor. **21**: 280—1949

Ear defender. Norman A. Watson, Paul S. Veneklasen, Robert W. Leonard, and Robert S. Gales. **21**: 280—1949

Ear protector. Robert H. Sailsbury and Edward M. Oehser. **21**: 451—1949

Electromagnetic mechanism for bone conduction receivers, etc. Samuel F. Lybarger. **21**: 563—1949

Hearing aid. Ferdinand A. Gabbert. **21**: 281—1949

Hearing Aid. Samuel F. Lybarger. **21**: 280—1949

Hearing aid amplifier. Harry B. Shapiro. **21**: 450—1949

Hearing aid attachment for spectacles. George P. Kimmel. **21**: 450—1949

Hearing aid equipment for confessionals. Nicholas V. Casson. **21**: 450—1949

Noise insulating ring for earphones. Joseph E. Valentine. **21**: 451—1949

4.6 Loudness. Threshold Determinations

PAPERS

Effect of white noise on the loudness of speech of assigned average level. Irwin Pollack. **21**: 255—1949

Loudness and loudness matching of short tones. W. R. Garner. **21**: 398—1949

ABSTRACTS

Differential sensitivity of the ear to changes of frequency and intensity. A. Spector. **21**: 61—1949

Least discriminable intensity for random noise. J. Donald Harris. **21**: 460—1949

Loudness patterns—a new approach. W. A. Munson and Mark B. Gardner. **21**: 59—1949

Threshold of hearing for continuous and interrupted tones. Walter A. Rosenblith and George A. Miller. **21**: 467—1949

4.7 Masking (see also 5.5)

PAPERS

Auditory masking of multiple tones by random noise. Tillman H. Schafer and Robert S. Gales. **21**: 392—1949

Theory of speech masking by reverberation. R. H. Bolt and A. D. MacDonald. **21**: 577—1949

ABSTRACTS

Masking at various levels of the auditory system. N. Gross, E. Kemp, K. Lowy, and W. Thurlow. **21**: 59—1949

SUBTITLE

Masking level as a function of cut-off frequencies and type of masker. I. J. Hirsh and F. A. Webster. **21**: 499—1949

4.8 Phase Effects (see also 4.3)

PAPER

Some determinants of interaural phase effects. I. J. Hirsh and F. A. Webster. **21**: 496—1949

ABSTRACT

Discriminability of interaural phase relations in two-component tones. J. C. R. Licklider. **21**: 62—1949

4.9 Pitch

ABSTRACT

Differential sensitivity of the ear to changes of frequency and density. **21**: 61—1949

4.11 Theories of Hearing

PAPER

Patterns of response in the cochlea. Ernest Glen Wever and Merle Lawrence. **21**: 127—1949

5. Applied Acoustics. Instruments and Apparatus

5.1 General, Unclassified

ABSTRACTS

Applications of the acoustic sing-around circuit. R. L. Hanson. **21**: 60—1949

Ripple tank as a device for studying wave propagation. H. D. Rix. **21**: 464—1949

PATENTS

Combined safety and sound-producing device for radiators. John A. Swindle. **21**: 564—1949

Horn control. Lawrence D. Bell. **21**: 451—1949

Sound recording device. Harvey Fletcher, John F. Müller, and Karl D. Swartzel, Jr. **21**: 451—1949

Steam-operated horn. Karlis V. Ozols. **21**: 281—1949

Three-magnitude recorder. George Keinath. **21**: 451—1949

5.3 Acoustical and Mechanical Impedance Measurement (see also 11.4)

PAPERS

Measurement of acoustic impedance. Osman K. Mawardi. **21**: 84—1949

Motional impedance measurements on a magnetostrictive system. Frank P. Finlon. **21**: 177—1949

ABSTRACTS

Measurement of mechanical impedance. Robert A. Langevin. **21**: 60—1949

Method for the measurement of acoustical impedance. Arthur J. Bazeley. **21**: 60—1949

Simplified acoustic impedance measurements. R. W. Leonard. **21**: 460—1949

5.4 Analyzers and Filters, Mechanical and Electrical Acoustic Filters. Oscillographs (see also 5.15)

PAPERS

Cathode-ray sound spectroscope. R. C. Mathes, A. C. Norwine, and K. H. Davis. **21**: 527—1949

Objectives for sound portrayal. Ralph K. Potter. **21**: 1—1949

ABSTRACTS

Action pictures on sound—a motion picture portrayal of dynamic spectra. R. C. Mathes. **21**: 462—1949

Continuously adjustable filter for audiofrequencies. Glenn E. Tisdale. **21**: 460—1949

PATENTS

Electrical wave analyzer. Carl G. Sontheimer. **21**: 281—1949

Electrical wave analyzing circuit. Donald D. Grieg. **21**: 281—1949

Method and apparatus for separating audiofrequencies. Walter Soller. **21**: 646—1949

Piezoelectric damping means for mechanical vibrations. Warren P. Mason. **21**: 282—1949

5.5 Audiometers (see also 4.4 and 4.5)

PATENT

Sound pick-up unit. William C. Eddy. **21**: 282—1949

5.7 Frequency Standards, Frequency Measuring and Recording Instruments

PAPERS

Cathode-ray sound spectroscope. R. C. Mathes, A. C. Norwine, and K. H. Davis. **21**: 527—1949

Extraction and portrayal of pitch of speech sounds. O. O. Gruenz, Jr. and L. O. Schott. **21**: 487—1949

SUBTITLES

Frequency meter. O. O. Gruenz, Jr. and L. O. Schott. **21**: 491—1949

Pitch-color portrayal system. O. O. Gruenz, Jr. and L. O. Schott. **21**: 492—1949

Pitch detector. O. O. Gruenz, Jr. and L. O. Schott. **21**: 490—1949

Pitch-time portrayal system. O. O. Gruenz, Jr. and L. O. Schott. **21**: 493—1949

PATENTS

Frequency indicating cathode-ray oscilloscope. Charles William Earp. **21**: 282—1949

Recording apparatus. David E. Sunstein. **21**: 48—1949

Vibrating reed frequency meter. Frederick J. Lingel. **21**: 282—1949

5.8 Loudspeakers, Horns (see also 5.13 and 5.17)

PAPERS

Application of activated ceramics to transducers. H. W. Koren. **21**: 198—1949

Generalized solutions of Webster's horn theory. Osman K. Mawardi. **21**: 323—1949

Non-linear distortion in dynamic loudspeakers due to magnetic effects. W. J. Cunningham. **21**: 202—1949

ABSTRACTS

Acoustic impedance of closed, rectangular, loudspeaker housings. Willard F. Meeker, Frank H. Slaymaker, and Lynn L. Merrill. **21**: 459—1949

Application of activated ceramics to transducers. H. W. Koren. **21**: 62—1949

Automatic transducer response recording with a standard comparison microphone. Lewis P. Reitz. **21**: 57—1949

Non-linear distortion in dynamic loudspeakers due to magnetic effects. W. J. Cunningham. **21**: 460—1949

Theory of passive linear electroacoustic transducers with fixed velocity distributions. Leslie Foldy. **21**: 57—1949

SUBTITLES

Damping of horn walls and speaker enclosures. George A. Brettell. **21**: 141—1949 L.E.

Slant plate cylindrical lens placed in front of a horn. Winston E. Kock and F. K. Harvey. **21**: 479—1949

PATENTS

Acoustic device. Edward C. Wente. **21**: 452—1949

Acoustical apparatus. John E. Volkmann. **21**: 564—1949

Double disk eddy current loudspeaker. William K. McIver. **21**: 152—1949

Electric megaphone. Henry C. Dalrymple. **21**: 152—1949

Electrodynamic loudspeaker. John F. Marquis and Carleton T. Weibler. **21**: 49—1949

Electrodynamic loudspeaker. Frank Massa. **21**: 452—1949

Electropneumatic sound reproducer. William C. Eaves. **21**: 282—1949

Loudspeaker. Carleton T. Weibler. **21**: 282—1949

Loudspeaker diaphragm support. John F. Marquis. **21**: 451—1949

Loudspeaker with pressure-equalized chamber system enclosing flux gap. Hugh S. Knowles. **21**: 153—1949

Pneumatic sound producing device. William C. Eaves. **21**: 282—1949

Pressure-proof reproducers. William A. Myers. **21**: 283—1949

Radio cabinet and speaker mounting. George F. Devine. **21**: 451—1949

Radio receiver and the like. William C. Rogers. **21**: 153—1949

Sound projecting apparatus. William C. Eaves. **21**: 282—1949

Sound reproduction system. Walter J. Zenner. **21**: 564—1949

Superimposed duplex loudspeaker. John F. Marquis. **21**: 564—1949

Temperature compensated microphone. Herbert W. Bryant. **21**: 153—1949

5.9 Microphones. Vibration Microphones. Microphone Calibration Equipment and Techniques (see also 13.11t)

PAPERS

Application of activated ceramics to transducers. H. W. Koren. **21**: 198—1949

Direct reading microdisplacement meter. J. P. Arndt, Jr. **21**: 385—1949

On the reciprocity free-field calibration of microphones. Weiant Wathen-Dunn. **21**: 542—1949

Substitution method of measuring the open circuit voltage generated by a microphone. M. S. Hawley. **21**: 183—1949

Theoretical aspects of the reciprocity calibration of electromechanical transducers. Sanford P. Thompson. **21**: 538—1949

Theory of passive linear electroacoustic transducers with fixed velocity distribution. Leslie L. Foldy. **21**: 595—1949

ABSTRACTS

Absorption and scattering of sound power by a microphone. Richard K. Cook. **21**: 467—1949

Acoustic gallstone detector. E. G. Thurston and Eric A. Walker. **21**: 463—1949

Application of activated ceramics to transducers. H. W. Koren. **21**: 62—1949

Automatic transducer response recording with a standard comparison microphone. Lewis P. Reitz. **21**: 57—1949

Calibration of microphones to one hundred kilocycles per second. H. F. Koster, H. E. von Gierke, and H. L. Oestreicher. **21**: 58—1949

Present status of piezoelectric transducer crystals. Hans Jaffe. **21**: 465—1949

Recent research on barium titanate used as a transducer material. W. P. Mason. **21**: 462—1949

Recent studies of transistors in transducer applications. R. L. Wallace, Jr. **21**: 462—1949

Self-reciprocity in a plane wave sound field. B. D. Simmons and R. J. Urick. **21**: 63—1949

Theory of passive linear electroacoustic transducer with fixed velocity distributions. Leslie L. Foldy. **21**: 57—1949

SUBTITLE

Calibration by driving-point admittance. Sanford P. Thompson. **21**: 540—1949

PATENTS

Acceleration pick-up. Albert E. McPherson. **21**: 452—1949

Acoustic device. Edmond Bruce. **21**: 565—1949

Balanced granular microphone. Louis R. Burroughs. **21**: 283—1949

Condenser microphone. Noble E. Brewer. **21**: 565—1949

Damping means for mechanical vibratory devices. Alfred L. W. Williams and Dean R. Christian. **21**: 564—1949

Detonation pick-up. John R. Burns and John M. Whitmore. **21**: 452—1949
Dynamic strain pick-up. Walter Ramberg. **21**: 452—1949
Electromagnetic throat microphone. James Samuel Paterson Roberton. **21**: 452—1949
Magnetically shielded electrodynamic sound reproducer. Webster E. Gilman. **21**: 565—1949
Magnetostrictive pick-up unit. Kenneth R. Eldredge, Alf Hundere, and John H. MacPherson, Jr. **21**: 564—1949
Moisture impervious vent. Herbert W. Bryant. **21**: 565—1949
Piezoelectric device for converting pressure variations into potential variations. Willem Hendrik Stigter. **21**: 565—1949
Telephone transmitter. George H. Brodie. **21**: 283—1949
Vibration pick-up. John M. Tyler and Vincent E. Thornburg. **21**: 452—1949
Vibration responsive apparatus. Robert C. Treseder. **21**: 49—1949

5.10 Navigational Instruments Using Air Sound. Altitude Measuring Instruments. Sound Ranging (for Underwater Ranging see 13.11n). Geophysical Prospecting

PATENTS

Apparatus and method for making and analyzing geophysical records. Frank Rieber. **21**: 565—1949
Apparatus for producing pressure pulses in boreholes. André Blanchard. **21**: 647—1949
Method and means for surveying geological formations. Le Roy C. Paslay. **21**: 647—1949
Method of making geophysical explorations. Lawrence F. Athy. **21**: 647—1949
Seismic method of locating faults. Alexander Wolf. **21**: 646—1949
Seismic wave detector. George B. Loper. **21**: 452—1949
Submersible seismometer system. Raymond A. Peterson. **21**: 452—1949
Wave sensitive and wave front detecting apparatus. Alexander McLean Nicolson. **21**: 49—1949

5.13 Public Address Systems and Sound Picture Installations

PATENT

Signal transmission and receiving apparatus. Harry F. Olson. **21**: 452—1949

5.15 Sound Level Meters. Level Recorders. Sound Pressure Measurement (see also 5.4)

PAPERS

Cathode-ray sound spectroscope. R. C. Mathes, A. C. Norwine, and K. H. Davis. **21**: 527—1949
New high speed level recorder. P. V. Bruel and Uno Ingård. **21**: 91—1949

ABSTRACTS

Direct reading micro-displacement meter having zero mechanical impedance. J. P. Arndt, Jr. **21**: 60—1949
Instruments used to measure shock wave phenomena. Walker Bleakney. **21**: 59—1949
New high speed inkless recorder. A. W. Niemann and L. P. Reitz. **21**: 465—1949

SUBTITLE

Chart for determining the equivalent component level of noise. Leo L. Beranek. **21**: 269—1949

5.16 Sound Recording and Reproducing. General

PAPERS

Objectives for sound portrayal. Ralph K. Potter. **21**: 1—1949
Subjective testing of sound reproducing equipment. Lewis S. Goodfriend. **21**: 81—1949

ABSTRACTS

Acoustic facsimile of a goal. W. B. Snow. **21**: 59—1949
High fidelity *vs.* subjective "faithful" sound reproduction. J. P. Maxfield. **21**: 60—1949
Limitations imposed by sound recording on high fidelity sound reproduction. S. J. Begun. **21**: 60—1949
Reproductions of sound. Harry F. Olson. **21**: 59—1949
Some factors governing frequency response in magnetic recording. R. L. Wallace, Jr. **21**: 57—1949
Subjective considerations for high fidelity reproduction. D. P. Loye. **21**: 59—1949
Subjective testing of sound reproducing equipment. Lewis S. Goodfriend. **21**: 61—1949

SUBTITLE

Traité de Prise de Son. José Bernhart. **21**: 638—1949 B.R.
Types of reproduced sound. Vincent Salmon. **21**: 552—1949 L.E.

PATENTS

Recording apparatus volume level. Paul Stead Gay. **21**: 647—1949
Reverberation method and system. Michael Rettinger. **21**: 49—1949
Sound recording and reproducing control system. Frederick W. Roberts and Roger C. Curtis. **21**: 647—1949
Sound reverberating device. John David Stack. **21**: 49—1949

5.16d Disk Recording (including cutting and embossing)

ABSTRACT

Universal phonograph styli. John D. Reid. **21**: 463—1949

PATENTS

Capacity-type phonograph pick-up. Frank B. Tatro. **21**: 567—1949
Electric phonograph pick-up of the capacity type. René Snepvangers. **21**: 453—1949
Electric phonograph resistance type pick-up. John J. Root. **21**: 566—1949
Electrical sound translating device. Lionel B. Cornwell. **21**: 647—1949
Frequency-modulation phonograph pick-up system. Leslie A. Gould. **21**: 283—1949
Means for mounting stylus cartridge. Creed M. Chorpening. **21**: 648—1949
Method of and system for translating signals. Joseph G. Beard and Robert W. Harralson. **21**: 453—1949
Method of making phonograph records. Lawrence A. Wood, Jr. **21**: 648—1949
Method of sound record manufacture. Clifford Eddison. **21**: 647—1949
Phonograph needle. William H. Hutter. **21**: 283—1949
Phonograph pick-up device. Bruce Roberts. **21**: 566—1949
Phonograph recording and reproducing system. Isaac P. Rodman. **21**: 566—1949
Phonograph recording head. Lincoln Thompson. **21**: 567—1949
Phonograph stylus mount. Richard A. MacDonald. **21**: 453—1949
Signal translating apparatus. Alexis Badmaieff. **21**: 283—1949
Signal translating apparatus. Winfield R. Koch. **21**: 567—1949
Stylus for sound reproduction. Richard H. Campbell. **21**: 567—1949
Tone arm mounting. Robert M. Cain. **21**: 566—1949
Transducer. Howard W. Ashton. **21**: 648—1949

Turntable drive for phonographs. Herbert L. Hartman. 21: 453—1949
Wedged needle type phonograph pick-up. William H. Hutter. 21: 648—1949

5.16f Film Recording (by photographic means)

PATENTS

Optical system for sound recording. Lawrence T. Sachtleben. 21: 567—1949
Stroboscopic light valve checking machine. James Patrick Corcoran. 21: 50—1949
Variable time sound recording method and system. Edward W. Kellogg. 21: 567—1949

5.16m Magnetic Recording

PAPERS

Noise in magnetic recording systems as influenced by the characteritsics of bias and erase signals. J. W. Gratian. 21: 74—1949
Some factors governing frequency response in magnetic recording. R. L. Wallace, Jr. 21: 57—1949

SUBTITLE

Magnetic recording. S. J. Begun. 21: 638—1949 B.R.

PATENTS

Acoustic reservoir for use in a magnetic sound recording and reproducing system. Frank Rieber. 21: 284—1949
Coin-operated voice recording machine. Edmund M. Squire. 21: 567—1949
Combination of magnetic transducing and erasing heads. Marvin Camras. 21: 569—1949
Combined erasing and recording magnetic transducer. Marvin Camras. 21: 649—1949
Continuous magnetic recording system. Herman Nygaard. 21: 284—1949
Endless tape magnetic recording-reproducing device. Harry B. Miller. 21: 454—1949
Head for magnetic recording machines. Thomas H. Long. 21: 570—1949
Interchangeable magnetic transducer and switching system. Donald E. Ross and Willard E. Stofer. 21: 570—1949
Magazine for magnetic recording apparatus. John H. Heineman. 21: 283—1949
Magazine-type magnetic recorder and reproducer. Richard M. Somers and Roscoe C. VanCamp. 21: 283—1949
Magazine-type magnetic recorder with multiple-lane tape and traversing transducer. Herman S. Heller. 21: 569—1949
Magnetic head. Stanley D. Eilenberger. 21: 568—1949
Magnetic material. Alfred L. W. Williams and Semi Joseph Begun. 21: 568—1949
Magnetic recorder. William P. Lear. 21: 454—1949
Magnetic recorder with friction drive device incorporated within the magazine. Richard A. Marsen. 21: 569—1949
Magnetic recording and reproducing device with means to prevent accidental erase of record medium. Harold A. Vagtborg. 21: 569—1949
Magnetic recording apparatus. Willard H. Wade. 21: 648—1949
Magnetic recording device. Harold A. Vagtborg, Marvin Camras, and Raymond E. Zenner. 21: 568—1949
Magnetic recording-reproducing means and system. Semi Joseph Begun. 21: 284—1949
Magnetic recording-reproducing means and system. Semi Joseph Begun. 21: 568—1949
Magnetic reproducer using endless tape records. Wilden A. Munson. 21: 569—1949
Magnetic sound recording. Stanley D. Eilenberger. 21: 568—1949
Magnetic sound recording and reproducing. Semi Joseph Begun. 21: 567—1949
Magnetic sound recording and reproducing transducer. Henry E. Roys. 21: 570—1949
Magnetic sound translating system. William P. Lear. 21: 568—1949
Magnetic transducer adapted to compensate for twisting of record wire. David E. Sunstein. 21: 570—1949
Magnetic transducer adapted to compensate for twisting of the record wire. Howard E. Tompkins. 21: 649—1949
Magnetic transducer having an irregular non-magnetic gap. Hugh A. Howell. 21: 570—1949
Magnetic transducer with separable pole faces. William P. West. 21: 569—1949
Magnetic transducing apparatus utilizing a helical sound trace. William E. Bradley. 21: 569—1949
Magnetic wire telegraphophone system. David E. Sunstein. 21: 454—1949
Method and apparatus for reproduction of angular magnetic recording. David E. Sunstein. 21: 454—1949
Rectilinear pole piece for magnetic sound heads. Stanley D. Eilenberger. 21: 568—1949
Reel for magnetic recording apparatus. Bailey L. Canfield. 21: 568—1949
Telegraphone. Terry M. Shrader. 21: 649—1949

5.17 Telephone. Telephone Receivers

ABSTRACT

Ring armature receiver—an improved transducer for telephone use. W. C. Jones. 21: 462—1949

PATENTS

Electromagnetic sound translating device. John J. Hyland and William J. Muldoon. 21: 284—1949
Permanent magnet electrodynamic transducer. Walter E. Gilman. 21: 454—1949
Sound shield for telephone transmitters. Paul S. Veneklasen. 21: 570—1949

5.19 Tuning Forks

PATENT

Tuning fork construction. George W. Rusler. 21: 50—1949

5.21 Vibration Devices. Devices for Generating or Damping Vibrations (see also 2.11 and 5.9)

PAPER

Direct reading microdisplacement meter. J. P. Arndt, Jr. 21: 385—1949

ABSTRACTS

Direct reading micro-displacement meter having zero mechanical impedance. J. P. Arndt, Jr. 21: 60—1949
Dynamic force generators. A. Dix Brown and Robert A. Langevin. 21: 60—1949

SUBTITLE

Remarks on the reciprocity calibration of vibration probes. Sanford P. Thompson. 21: 142—1949 L.E.

PATENTS

Apparatus for measuring mechanical vibrations. Earle L. Kent and Robert C. Treseder. 21: 153—1949
Vibration apparatus. Earle L. Kent and Robert C. Treseder. 21: 153—1949
Vibration indicating device. Earl L. Kent, and Robert C. Treseder. 21: 284—1949

6. Musical Instruments and Music

6.1 General, Unclassified

PAPERS

Composer's music box. Robert B. Watson. **21**: 214—1949
Contributions of acoustics to the arts. Wilmer T. Bartholomew. **21**: 311—1949
Intonation of solo and ensemble performance of the same melody. James F. Nickerson. **21**: 593—1949
Musical scales and their classification. J. Murray Barbour. **21**: 586—1949
Universal phonograph styli. John D. Reid. **21**: 590—1949

ABSTRACTS

Acoustics department of the Juilliard School of Music. Harry L. Robin. **21**: 461—1949
Comparison of performances of the same melody played in solo and in ensemble with reference to equal tempered, just, and pythagorean intonations. James F. Nickerson. **21**: 462—1949
Composer's music box. R. B. Watson. **21**: 63—1949
Musical scales and their classification. J. Murray Barbour. **21**: 461—1949

PATENT

Acoustic device. Hal Horne. **21**: 51—1949
Decatonic keyboard. Lyman Young. **21**: 570—1949
Multitone whistle. Josephus Thompson. **21**: 570—1949
Music box. Eric Wedemeyer. **21**: 570—1949
Musical instrument. Hal Horne. **21**: 570—1949

6.2 Bells, Xylophones. Other Instruments Having Rigid Vibrators

PAPER

Beats and nodal meridians of a loaded bell. Arthur Taber Jones. **21**: 315—1949

SUBTITLE

Carillon. Arthur Lynds Bigelow. **21**: 438—1949 B.R.

PATENTS

Music box. Adolph Pfeiffer. **21**: 649—1949
Sounding device. Charles J. Clarke. **21**: 51—1949
Xylophone. Harry Zimmerman. **21**: 51—1949
Xylophone. Harry Zimmerman. **21**: 649—1949
Xylophone. Joseph A. Packheiser. **21**: 649—1949
Xylophone. Lazar Okrain. **21**: 571—1949

6.3 Brass Wind Instruments (lip vibrated)

PAPER

Internal tuning differences due to players and the taper of trumpet bells. John C. Webster. **21**: 208—1949

PATENTS

Automatic saliva key for trombones. William H. Maxwell. **21**: 153—1949
Mute for musical instruments. Theodore J. Hermes. **21**: 51—1949
Water key for brass musical instruments. Earl Williams. **21**: 51—1949
Wind instrument. Carl W. Forssberg. **21**: 51—1949

6.4 Drums and Other Membranophonic Instruments

PATENTS

Drum pedal. Milton E. Crowell. **21**: 455—1949
Drum pedal apparatus. Frederick J. La Londe. **21**: 455—1949
Drum stand. Carlo Calo. **21**: 52—1949
Snare-drum adjustment. Cyril Herbert Peacock. **21**: 51—1949

6.6 Pianos and Other Keyboard Stringed Instruments

PAPERS

Influence of humidity on the tuning of a piano. Robert W. Young. **21**: 580—1949
Proposed loading of piano strings for improved tone. Franklin Miller, Jr. **21**: 318—1949

ABSTRACT

Influence of humidity on the tuning of a piano. Robert W. Young. **21**: 461—1949

PATENTS

Electric piano action. James F. Goodwin. **21**: 571—1949
Footrest and pedal extension. Philip Kaufman and Reyn Stovall. **21**: 571—1949
Piano action. Alexander P. Brown. **21**: 153—1949
Piano action. Francis C. Socin. **21**: 52—1949
Piano action. Francis C. Socin. **21**: 153—1949
Piano dampening mechanism. Harold B. Rhodes. **21**: 571—1949
Piano mechanism. Auxance N. Prevost. **21**: 284—1949
Resonator for musical instruments. Archie Mitchell Tyson. **21**: 571—1949

6.7 Violin Family. Stringed Instruments except Keyboard Type

PATENTS

Adjustable mute. Frederick Gosparlin. **21**: 284—1949
Attachment for violins and analogous instruments. Harry Allen Feldman. **21**: 572—1949
Bar or slide for playing certain musical instruments. Jules Miller. **21**: 154—1949
Bridge. George Van Eps. **21**: 572—1949
Fiddle. Joseph R. Beckman. **21**: 572—1949
Guitar magnetic microphone. Harry De Armond. **21**: 571—1949
Mandolin pick. Hyman Galetzky. **21**: 650—1949
Means for varying the tuning of stringed instruments. David John Ferrier. **21**: 571—1949
Microphone pick-up and volume control. Harry De Armond. **21**: 572—1949
Musical instrument. Arthur Horden Kimmons. **21**: 455—1949
Musical instrument. John W. McBride. **21**: 572—1949
Musical instrument. Newton J. Adair. **21**: 649—1949
Musical instrument. Newton J. Adair. **21**: 650—1949
Neck straightening device for musical nistruments. William W. Nelson. **21**: 650—1949
Pick for stringed instruments. Robert C. Garlick. **21**: 455—1949
Playing bar. Olen H. Yates. **21**: 455—1949
Playing steel. Henry H. Pulsifer. **21**: 650—1949
String depressor for stringed musical instruments. Howard L. Sprague. **21**: 455—1949
String musical instrument with cord tuning mechanism. J. D. Harlin. **21**: 649—1949
Pick-up unit for stringed instruments. Clarence Leo Fender and Clayton Orr Kauffman. **21**: 572—1949
Stringed musical instrument. Harry G. Sloan. **21**: 154—1949
Violin bridge. George Dahn. **21**: 154—1949
Violin bridge. William J. Ake. **21**: 571—1949
Violin peg. Eugene R. Stone. **21**: 571—1949

6.8 Wood Winds

PATENTS

Mouthpiece cover for musical instruments. George Shaw, Severino Frank Marino, and Daniel Shaw. **21**: 650—1949
Perforated reed for wind instruments. Jules Miller. **21**: 573—1949

Reversible reed for wind instruments. Jules Miller. 21: 573—1949
Saxophone key mounting. Floyd E. Comer. 21: 572—1949
Saxophone mouthpiece. Milton Werner. 21: 650—1949
Water absorber for clarinets and the like. Giuseppe Incampo. 21: 573—1949

6.9 Electrical Musical Instruments

PATENTS

Electrical musical instrument with split keyboard. Nicholas Langer. 21: 650—1949
Generation of tones in photoelectric musical instruments. Edward M. Jones. 21: 52—1949
Musical instrument. Alfred O. Williams. 21: 573—1949
Musical instrument. John Chapo. 21: 650—1949
Musical key control. James A. Koehl. 21: 455—1949
Sound reproducing system. Oras R. Lawrence. 21: 284—1949
Symphonic instrument. Antonio Fuschi. 21: 573—1949
Tremolo producing device. Andrew L. Appel. 21: 650—1949
Vibrato system for amplifiers. Nathan I. Daniel. 21: 650—1949

6.10 Reed Organs, Accordions, Harmonicas

PATENTS

Accordion shift mechanism. Albert J. Walt. 21: 52—1949
Accordion shift mechanism. Albert J. Walt. 21: 53—1949
Accordions with amplifier attachment. Edward D. Teikowski. 21: 53—1949
Amplified accordion. Walter J. Babicky. 21: 651—1949
Device for retarding and regulating the speed of the flow in accordions and similar musical reed instruments. René Seybold. 21: 53—1949
Double valve for accordions and like musical instruments. René Seybold. 21: 455—1949
Harmonica. Gabriel Ruffino. 21: 651—1949
Sound deflector for accordions. Roberto Pancotti. 21: 154—1949
Tremolo device for accordions. Walter Gerber. 21: 455—1949
Tremolo device for accordions. Walter Gerber. 21: 651—1949

7. Noise

7.1 General, Unclassified

PAPERS

Acoustics in comfort and safety. Leo L. Beranek. 21: 302—1949
Acoustics in comfort and safety. Vern O. Knudsen. 21: 296—1949
Effect of white noise on the loudness of speech of assigned average level. Irwin Pollack. 21: 255—1949
Method for quieting ram jet motor test stations. William B. Snow and C. J. T. Young. 21: 626—1949
Sounds of disease-carrying mosquitoes. Wm. H. Offenhauser, Jr. and Morton C. Kahn. 21: 259—1949

ABSTRACTS

Biological effects of intense sound. Donald H. Eldredge and Horace O. Parrack. 21: 55—1949
Some practical problems involved in a study of the industrial noise problem. Ralph Martin McGrath. 21: 463—1949
Sounds of disease-carrying mosquitoes. W. H. Offenhauser, Jr. and Morton C. Kahn. 21: 462—1949

SUBTITLE

Acceptable average noise levels. Vern O. Knudsen. 21: 300—1949
Chart for determining the equivalent of component level of noise. Leo L. Beranek. 21: 269—1949
Chart of sound levels of common noises. Vern O. Knudsen. 21: 298—1949
Noise. Ralph Martin McGrath. 21: 435—1949 L.E.

7.2 Annoyance

SUBTITLE

Annoyance of radio. Leo L. Beranek. 21: 267—1949

7.4 City Noise

ABSTRACT

Levels and spectra of noise in industrial and residential areas. G. L. Bonvallet. 21: 463—1949

7.5 Frequency Analyses of Noise

ABSTRACT

Levels and spectra of transportation vehicle noise. G. L. Bonvallet. 21: 56—1949

7.7 Machinery Noise. Mufflers. Noise Silencers

PAPER

Method for quieting ram jet motor test stations. William B. Snow and C. J. T. Young. 21: 626—1949

ABSTRACTS

Levels and spectra of transportation vehicle noise. G. L. Bonvallet. 21: 56—1949
Method for quieting ram jet motor test stations. W. B. Snow and C. J. T. Young. 21: 466—1949
Techniques of research used in quieting machinery and appliances. H. C. Hardy. 21: 465—1949

PATENTS

Acoustical wave filter for pneumatic hand tools. Gustav V. A. Malmros. 21: 455—1949
Gas pulsation dampening apparatus. Foster M. Stephens. 21: 53—1949
Muffler. Joseph J. Thomas. 21: 455—1949
Muffler for internal-combustion engines. George V. Johnson. 21: 456—1949
Silencer and recoil reducer for firearms. August Bauer. 21: 573—1949
Silencing muffler. Abel Schott and Gustave A. Ebelshauser. 21: 573—1949
Spark arrester silencer. Roland B. Bourne, John P. Tyskewicz, and Arthur E. Chase. 21: 455—1949
Vibration absorber. Herman J. Rudolph. 21: 573—1949
Wet-type water-separating steam-inhibiting exhaust muffler. George Wohlberg. 21: 456—1949

8. Standards

8.1 General, Unclassified

SUBTITLE

Proposed American standard acoustical terminology. February, 1949. 21: 439—1949 B.R.

9. Speech and Singing

9.1 General, Unclassified

PAPERS

Effect of white noise on the loudness of speech of assigned average level. Irwin Pollack. 21: 255—1949
Structure of the middle ear and the hearing of one's own voice by bone conduction. Georg v. Békésy. 21: 217—1949
Theory of speech masking by reverberation. R. H. Bolt and A. D. MacDonald. 21: 577—1949

ABSTRACTS

Analysis and synthesis of speech-like sounds. Franklin S. Cooper, John M. Borst, and Alvin M. Lieberman. 21: 461—1949

Effect of room characteristics upon vocal intensity and rate. John W. Black. 21: 461—1949

Twenty years of research in phonological biophysics. C. H. Voelker. 21: 462—1949

SUBTITLE

Relative amplitude of speech vibration over the body. Georg v. Békésy. 21: 222—1949

9.6 Instruments Relating to Speech and Singing

PAPER

Objectives for sound portrayal. Ralph K. Potter. 21: 1—1949

ABSTRACTS

Extraction and portrayal of pitch in speech sounds. O. O. Gruenz, Jr. and L. O. Schott. 21: 467—1949

Sonalator, a 29 channel visible speech translator. Harry R. Foster and Elmo E. Crump. 21: 467—1949

Speaking machine of Wolfgang von Kempelen. T. H. Tarnóczy. 21: 461—1949

Uniform speech-peak clipping in a uniform signal-to-noise spectrum ratio. Daniel W. Martin. 21: 460—1949

PATENT

Means for visually comparing sound effects during the production thereof. Barry Shipman and Robert H. Guhl. 21: 456—1949

9.7 Speech Pitch

PAPER

Extraction and portrayal of pitch of speech sounds. O. O. Gruenz, Jr. and L. O. Schott. 21: 487—1949

ABSTRACT

Extraction and portrayal of pitch in speech sounds. O. O. Gruenz, Jr. and L. O. Schott. 21: 467—1949

SUBTITLES

Pitch-color portrayal system. O. O. Gruenz, Jr. and L. O. Schott. 21: 492—1949

Pitch-time patterns. O. O. Gruenz, Jr. and L. O. Schott. 21: 495—1949

Pitch-time portrayal system. O. O. Gruenz, Jr. and L. O. Schott. 21: 493—1949

10. Ultrasonic (Supersonic)

10.1 General, Unclassified

PAPERS

Experimental investigation of ultrasonic intensity gain in water due to concave reflectors. Francis E. Fox and Virginia Griffing. 21: 352—1949

High frequency region of the acoustic spectrum in relation to thermal conductivity at low temperatures. Charles Kittel. 21: 308—1949

Theory of ultrasonic intensity gain due to concave reflectors. Virginia Griffing and Francis E. Fox. 21: 348—1949

SUBTITLES

Analysis of a bat's warning cry. W. H. Pielemeier. 21: 551—1949 L.E.

Bjerknes forces in stationary sound fields. F. G. Blake, Jr. 21: 551—1949 L.E.

Ultrasonics. Benson Carlin. 21: 638—1949 B.R.

10.2 Light Affected by Ultrasonic Waves

PAPER

Criteria for normal and abnormal ultrasonic light diffraction effects. G. W. Willard. 21: 101—1949

ABSTRACT

Ultrasonic light modulation. Amedeo Giacomini. 21: 61—1949

10.3 Ultrasonic Instruments

PAPERS

Double crystal acoustic interferometer. William J. Fry. 21: 17—1949

Experimental investigation of ultrasonic intensity gain in water due to concave reflectors. Francis E. Fox and Virginia Griffing. 21: 352—1949

Focusing ultrasonic radiators. G. W. Willard. 21: 360—1949

Low loss crystal systems. William J. Fry. 21: 29—1949

Low "Q" directional magnetostrictive electroacoustic transducer. Leon Camp and Francis D. Wertz. 21: 382—1949

Theory of focusing radiators. H. T. O'Neil. 21: 516—1949

Theory of the crystal transducer for plane waves. Walter G. Cady. 21: 65—1949

Theory of ultrasonic intensity gain due to concave reflectors. Virginia Griffing and Francis E. Fox. 21: 348—1949

Ultrasonic lenses of plastic materials. Daniele Sette. 21: 375—1949

Ultrasonic radiation from curved quartz crystals. Louis Fein. 21: 511—1949

Wave propagation in piezoelectric crystals. Joseph John Kyame. 21: 159—1949

ABSTRACTS

Improved devices for the concentration of ultrasonic energy. Paul J. Ernst. 21: 468—1949

Improvements in ultrasound velocity measurements by optical methods. Amedeo Giacomini. 21: 61—1949

Ultrasonic lenses of plastic materials. Daniele Sette. 21: 61—1949

SUBTITLES

Absolute sound intensities in liquids as a function of applied voltage and mechanical Q of source. F. E. Fox and V. Griffing. 21: 358—1949

Design of crystal vibrating systems for projectors and other applications. William J. Fry, John M. Taylor, and Bertha W. Henvis. 21: 145—1949 B.R.

Erratum: A low "Q" directional magnetostrictive electroacoustic transducer. Leon Camp and Francis D. Wertz. 21: 636—1949 L.E.

Erratum: Low loss crystal systems. William J. Fry. 21: 272—1949

Sonic laundering. H. K. Schilling, I. Rudnick, C. H. Allen, Pauline Beery Mack, and Joseph C. Sherrill. 21: 39—1949 L.E.

PATENTS

Apparatus and method for generating sound. Alfred Vang. 21: 285—1949

Automatic sonic measuring means. Gerald M. Rassweiler and Wesley S. Erwin. 21: 285—1949

Means for supersonic inspection. Benson Carlin. 21: 284—1949

Method of and apparatus for modulating the frequency of sound waves. Caperton B. Horsley. 21: 54—1949

Microwave-acoustic light valve. William D. Hershberger. 21: 574—1949

Modulator for sound waves. William A. Van Allen. 21: 54—1949
Supersonic measuring apparatus. Pierre Biquard. 21: 573—1949
Supersonic measuring means. Wesley S. Erwin. 21: 285—1949
Supersonic reflectoscope. Floyd A. Firestone. 21: 651—1949

10.4 Gases, Ultrasonic Velocities, Dispersion, and Absorption (see also 11.3)

PAPER

Ultrasonic velocities and absorption in gases at low pressures. I. F. Zartman. 21: 171—1949

10.5 Liquids, Ultrasonic Velocities, Dispersion and Absorption (see also 13.2 and 13.3)

PAPER

Supersonic waves in water-alcohol-sodium chloride mixture and analysis of its intermolecular action. R. Parshad. 21: 175—1949

ABSTRACTS

Absorption measurements in magnesium sulfate. R. T. Beyer, M. C. Smith, and R. Barrett. 21: 465—1949
Measurement of shear elasticity and viscosity of liquids by means of ultrasonic shear waves. W. P. Mason and H. J. McSkimin. 21: 58—1949

SUBTITLES

Absolute sound intensities in liquids as a function of applied voltage and mechanical Q of source. F. E. Fox and V. Griffing. 21: 358—1949
Determination of pressure nodes in liquids. D. E. Goldman and G. R. Ringo. 21: 270—1949 L.E.

10.6 Solids, Ultrasonic Velocities, Dispersion, and Absorption

SUBTITLE

Ultrasonic data on solid materials. Paul J. Ernst. 21: 636—1949 L.E.

10.7 Physical Effects of Ultrasonic Waves

SUBTITLE

Bjerknes forces in stationary sound fields. F. G. Blake, Jr. 21: 551—1949 L.E.

PATENT

Acoustic chamber. Caperton B. Horsley. 21: 574—1949

10.9 Biological Effects of Ultrasonic Waves

ABSTRACTS

Biological effects of intense sound. Donald H. Eldredge and Horace O. Parrack. 21: 55—1949

SUBTITLE

Analysis of a bat's warning cry. W. H. Pielemeier. 21: 551—1949 L.E.

11. Waves and Vibrations

11.1. General, Unclassified

PAPER

Sounds of disease-carrying mosquitoes. Wm. H. Offenhauser, Jr. and Morton C. Kahn. 21: 259—1949

11.2 Diffractions. Interference. Scattering. Reflection. Echoes. Standing Waves

PAPERS

Diffraction of sound by a circular disk. Alfred Leitner. 21: 331—1949
Diffraction of sound by rigid disks and rigid square plates. Francis M. Wiener. 21: 334—1949
Experimental investigation of ultrasonic intensity gain in water due to concave reflectors. Francis E. Fox and Virginia Griffing. 21: 352—1949
Note on the Kirchhoff approximation in diffraction theory. R. D. Spence. 21: 98—1949
Theory of ultrasonic intensity gain due to concave reflectors. Virginia Griffing and Francis E. Fox. 21: 348—1949

ABSTRACT

Absorption and scattering of sound power by a microphone. Richard K. Cook. 21: 467—1949

SUBTITLES

Diffraction by rigid disks and rigid squares. Francis M. Wiener. 21: 39—1949 L.E.
Erratum: On diffraction through a circular aperture. John W. Miles. 21: 434—1949
On diffraction through a circular aperture. John W. Miles. 21: 140—1949 L.E.
Photographs of the diffraction pattern of a crystal. H. T. O'Neil. 21: 523—1949

11.2.1 Gross Movement of Matter by Sound or Vibration. Chladni Figures. Kundt's Striae. Sensitive Flames (see also 5.14 and 10.7)

PAPER

The effect of sound on laminar propane-air flames. S. Loshaek, R. S. Fein, and H. L. Olsen. 21: 605—1949

ABSTRACT

X-ray study of vibrating crystal plates. J. E. White. 21: 468—1949

11.3 Propagation of Sound. Absorption during Propagation. Velocity of Sound. Refraction. Wave-Length. Doppler Effect (see also 10.4, 10.5, 10.6, 13.2, and 13.3)

PAPERS

Abnormal audibility zones in long distance propagation through the atmosphere. Everett F. Cox. 21: 6—1949
Air shock wave velocities over water. Elias Klein. 21: 109—1949
Audibility of thunder. Robert G. Fleagle. 21: 411—1949
Propagation of sound in composite media. R. J. Urick and W. S. Ament. 21: 115—1949
Propagation of sound waves along liquid cylinders. William J. Jacobi. 21: 120—1949
Refracting sound waves. Winston E. Kock and F. K. Harvey. 21: 471—1949
Theory of low frequency sound absorption in solids with application to soda-silicate glasses. Granino A. Korn. 21: 547—1949

ABSTRACTS

Direct measurements of the attenuation of audio frequency sound pulses in the open. L. P. Delsasso, R. W. Leonard, and H. C. Silent. 21: 58—1949
Experimental study of the velocities of Rayleigh and Lamb waves. J. R. Frederick and A. E. Martin, Jr. 21: 467—1949
Kinetic theory equations for sound in gases. Henry Harrison. 21: 467—1949
Methods for focusing, guiding, and refracting sound waves. Winston E. Kock. 21: 462—1949
Propagation of sound in boundary layers. Harold G. Elrod, Jr. 21: 59—1949
Propagation of sound in composite media. R. J. Urick and W. S. Ament. 21: 62—1949

Pulse phase comparison method for the measurement of sound velocity in semisolid substances. J. R. Richards and E. J. Pember. 21: 63—1949
Refracting sound waves. Winston E. Kock and F. K. Harvey. 21: 63—1949
Shock wave velocities over water. Elias Klein. 21: 59—1949

SUBTITLES

Delay lens. Winston E. Kock and F. K. Harvey. 21: 473—1949
Errata: Abnormal audibility zones in long distance propagation through the atmosphere. Everett F. Cox. 21: 501—1949
Obstacle arrays. Winston E. Kock and F. K. Harvey. 21: 471—1949
Path length refractors. Winston E. Kock and F. K. Harvey. 21: 474—1949
Slant plate cylindrical lens placed in front of a horn. Winston E. Kock and F. K. Harvey. 21: 479—1949
Ultrasonic data on solid materials. Paul J. Ernst. 21: 636—1949 L.E.

11.4 Radiation from Vibrating Objects. Acoustical Impedance. Mechanical Impedance (see also 5.3 and 13.7)

PAPERS

Acoustic reactance of small circular orifices. R. H. Bolt, S. Labate, and U. Ingård. 21: 94—1949
Pressure distribution in the acoustical field excited by a vibrating plate. Jaroslav Pachner. 21: 617—1949
Theory of focusing radiators. H. T. O'Neil. 21: 516—1949
Ultrasonic radiation from curved quartz crystals. Louis Fein. 21: 511—1949

ABSTRACTS

Acoustic impedance of a bubbly mixture and the determination of its bubble size distribution function. Norman Davids and E. G. Thurston. 21: 466—1949
Focusing radiators. H. T. O'Neil. 21: 60—1949
Mechanical impedance of the surface of the human body. E. Franke. 21: 55—1949
Non-linear effects in acoustic resonators and orifices. R. H. Bolt and Samuel Labate. 21: 57—1949
Ultrasonic radiation from an ideal piston source. G. S. Heller. 21: 467—1949

SUBTITLE

Crystal fastened in a holder and radiating into a medium of characteristic impedance ρV. William J. Fry. 21: 33—1949

11.5 Sounds of Finite Amplitude. Distortion

PAPER

Air shock wave velocities over water. Elias Klein. 21: 109—1949

ABSTRACTS

Characteristics of shock waves—a survey. John C. Evvard. 21: 59—1949
Instruments used to measure shock wave phenomena. Walker Bleakney. 21: 59—1949
Present-day problems of ballistic shock waves. Everett F. Cox. 21: 59—1949
Shock wave velocities over water. Elias Klein. 21: 59—1949

11.6 Sound in Tubes

PAPERS

Lined tube as an element of acoustic circuits. Charles T. Molloy. 21: 413—1949
On the propagation of sound waves in narrow conduits. Osman K. Mawardi. 21: 482—1949
Propagation of sound waves along liquid cylinders. William J. Jacobi. 21: 120—1949

ABSTRACTS

On the propagation of sound in narrow conduits. Osman K. Mawardi. 21: 460—1949
Propagation of sound waves in liquid-filled tubes. William J. Jacobi. 21: 61—1949

SUBTITLE

Input impedance of narrow conduit. Osman K. Mawardi. 21: 484—1949

11.7 Theory of Waves and Vibrating Systems (see also 5.4)

PAPERS

Acoustic reactance of small circular orifices. R. H. Bolt, S. Labate, and U. Ingård. 21: 94—1949
Beats and nodal meridians of a loaded bell. Arthur Taber Jones. 21: 315—1949
Laplace transform solution of beams. William T. Thomson. 21: 34—1949
Low loss crystal systems. William J. Fry. 21: 29—1949
Wave propagation in piezoelectric crystals. Joseph John Kyame. 21: 159—1949

ABSTRACTS

Dispersion of compressional waves in rods of rectangular cross section. R. W. Morse. 21: 468—1949
First symmetrical mode of vibration of a conical shell. H. C. Hardy and B. S. Ramakrishna. 21: 466—1949
Focusing radiators. H. T. O'Neil. 21: 60—1949
Non-linear effects in acoustic resonators and orifices. R. H. Bolt and Samuel Labate. 21: 57—1949
Oblique reflection and refraction of plane shear waves in viscoelastic media. H. T. O'Neil. 21: 468—1949
Spectra of ultrasonic edge tones. Wesley L. Nyborg and Mahlon D. Burkhard. 21: 61—1949
Study of thermoelastic behavior of metals by vibration measurements. Piero G. Bordoni. 21: 55—1949
X-ray study of vibrating crystal plates. J. E. White. 21: 468—1949

SUBTITLE

Erratum. Interactions between a plate and a sound field. R. D. Fay. 21: 272—1949

11.8 Biological Effects of Vibration and Sound (see also 10.9)

ABSTRACTS

Biological effects of intense sound. Donald H. Eldredge and Horace O. Parrack. 21: 55—1949
Sound absorption at the surface of the body of man and animals. H. E. von Gierke. 21: 55—1949

13. Underwater Sound

13.2 Propagation of Sound in Water. Attenuation. Fluctuation

PAPERS

Propagation of sound in composite media. R. J. Urick and W. S. Ament. 21: 115—1949
Propagation of sound waves along liquid cylinders. William J. Jacobi. 21: 120—1949

ABSTRACTS

Acoustic impedance of a bubbly mixture and the determination of its bubble size distribution function. Norman Davids and E. G. Thurston. 21: 466—1949

Attenuation of sound in "synthetic sea water." R. W. Leonard, Paul C. Combs, and Leslie R. Skidmore, Jr. **21**: 63—1949

Distortion of acoustic beam patterns by echoes and electric pick-up. A. O. Williams, Jr., W. Keck, and M. C. Smith. **21**: 469—1949

Intensity distribution in ultrasonic beams. W. Keck, G. S. Heller, and J. D. Nixon. **21**: 469—1949

Propagation of sound in composite media. R. J. Urick and W. S. Ament. **21**: 62—1949

13.4 Reflection. Echoes. Structures for Absorbing Sound in Water

ABSTRACT

Acoustic impedance of a bubbly mixture and the determination of its bubble size distribution function. Norman Davids and E. G. Thurston. **21**: 466—1949

13.6 Scattering. Reverberation in Water

PAPER

Scattering of an underwater ultrasonic beam from liquid cylindrical obstacles. Paul Tamarkin. **21**: 612—1949

ABSTRACT

Scattering of ultrasonic waves in water by cylindrical liquid-filled obstacles. Paul Tamarkin. **21**: 465—1949

13.7 Radiation from Objects Vibrating under Water. Acoustical Impedance. Mechanical Impedance.

PAPER

Motional impedance measurements on a magnetostrictive system. Frank P. Finlon. **21**: 177—1949

ABSTRACTS

Distortion of acoustic beam patterns by echoes and electric pick-up. A. O. Williams, Jr., W. Keck, and M. C. Smith. **21**: 469—1949

Intensity distribution in ultrasonic beams. W. Keck, G. S. Heller, and J. D. Nixon. **21**: 469—1949

13.9 Noise in Water. Ship Noise. Biological Noises

ABSTRACT

Proposed acoustic system for ordnance research laboratory water tunnel. Paul M. Kendig. **21**: 464—1949

13.10 Sounds of Finite Amplitude in Water. Explosions. Distortion. Cavitation

ABSTRACT

Properties of gaseous solutions as revealed by acoustic cavitation measurements. F. G. Blake, Jr. **21**: 464—1949

13.11 Instruments Relating to Underwater Sound. General

ABSTRACTS

Acoustic filter for water filled pipes. R. M. Hoover, D. Laird, and L. N. Miller. **21**: 464—1949

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